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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/912,723	07/23/2001	Mark A. Lauer	LAUM-004	5523

24501 7590 04/21/2004

MARK A LAUER  
6601 KOLL CENTER PARKWAY  
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PLEASANTON, CA 94566

EXAMINER

KLIMOWICZ, WILLIAM JOSEPH

ART UNIT PAPER NUMBER

2652

DATE MAILED: 04/21/2004

13

Please find below and/or attached an Office communication concerning this application or proceeding.

2



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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
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EXAMINER
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ART UNIT	PAPER
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13

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**Commissioner for Patents**

See attached Examiner's Communication.

*WJK*

William J. Klimowicz  
Primary Examiner  
Art Unit: 2652

***Examiner Communication***

The Examiner notes that an Appeal Brief was filed on March 8, 2004 (Paper No. 12). Among the issues discussed in the arguments of the Appeal Brief, the Appellant has argued the term of independent claim 1, that term being “adjoining.” It is argued that the term “adjoining,” as interpreted by the Examiner, is inconsistent with its usage as set forth in the Appellant’s disclosure.

More concretely, the Examiner had previously maintained that Soeno et al. (US 6,246,552 B1) disclosed an electromagnetic transducer (1) and a substrate (e.g., 43) “adjoining” the transducer (1). It was the Examiner’s position that as best depicted in the embodiments of, by example only, Figures 2-5, the substrate (43) was considered as “adjoining” the transducer (1), i.e., the transducer (1) being “next to” the substrate (43).

The Examiner based this interpretation on a definition of the word “adjoin” as found in *Webster’s II Riverside New College Dictionary*, which defines “adjoin” as:

1. To be next to. 2. To attach by joining -vi. To be in or nearly in contact.

The Examiner then reasoned that the instant specification is completely silent with respect to the definition of the word “adjoining.” In the opinion of the Examiner, the dictionary definition indicated that the use of the word “adjoining” merely required that two elements or objects be next to each other, and possibly contacting one another, but were expressly not required to be in contact.

The Examiner therefore at the time, considered the scope of the claims, with respect to the recitations “a substrate (e.g., 43) adjoining said transducer (1)” to include the structures (43) and (1), as being shown in, e.g., the Figures 2-5 of Soeno et al. (US 6,246,552 B1).

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Subsequent to the Appellant filing the Appeal Brief, however, a decision was handed down in a Federal Circuit Appeal (CAFC), International Rectifier Corp. v. IXYS Corp. 02-1414,-154 on March 18, 2004. In this very recent CAFC decision, a factually similar situation was raised as it pertained to the term "adjoining." See, e.g., page 16 through page 18 of the full text decision, appended herewith.

Based upon the reasoning forwarded by the CAFC, the Examiner has now determined that the Soeno et al. (US 6,246,552 B1) may not anticipate the invention as currently drafted.

The Examiner, however, notes that although the term as previously interpreted by the Examiner, has been cast in a much different light in view of this very recent decision by the CAFC, the Examiner feels that there still exists art already made of record that may yet read on some of the pending claims. In order to expedite prosecution on the merits, the Examiner is requesting an interview (telephonic or otherwise) at the Appellant's earliest convenience to discuss language that would be favorably considered over *all* the art of record. This claim language may also be generic to all disclosed embodiments.

Normally, an interview held after the filing of an Appeal Brief is normally not granted. See MPEP section 713.05 which states "[e]xcept in unusual situations, no interview is permitted after the brief on appeal is filed or after an application has been passed to issue."

This interview request, however, is considered as "unusual" as defined in the MPEP based on a fact-similar decision of the CAFC that was rendered subsequent to the filing of the Appellant's Brief and prior to the Examiner considering the arguments put forth by the Appellant's in their Brief in addition to this very recent CAFC decision.

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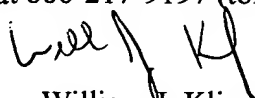
The Appellant is being given 1 month to respond to this communication. If, in the event that 1 month has lapsed and the Appellant has not responded to this communication, the Examiner will consider the option of re-opening prosecution and applying a different reference in support of a new grounds of rejection. In order to expedite prosecution on the merits, however, the Appellant is encouraged to respond to this written communication to discuss favorable claim language.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William J. Klimowicz whose telephone number is (703) 305-3452. The examiner can normally be reached on Monday-Thursday (6:30AM-5:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
William J. Klimowicz  
Primary Examiner  
Art Unit 2652

Application/Control Number: 09/912,723

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WJK

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## EXAMINER'S CASE ACTION WORKSHEET

Application No.  
09/912,723



Legal Instrument Examiner

CHECK TYPE OF ACTION

DATE OF COUNT

<input type="checkbox"/> Non-Final Rejection	<input type="checkbox"/> Restriction/Election Only	<input type="checkbox"/> Final Rejection
<input type="checkbox"/> Ex Parte Quayle	<input type="checkbox"/> Allowance	<input type="checkbox"/> Advisory Action
<input type="checkbox"/> Examiner's Answer	<input type="checkbox"/> Reply Brief Noted	<input type="checkbox"/> Non-Entry of Reply Brief
<input type="checkbox"/> Defective Notice of Appeal	<input type="checkbox"/> Interference Disposal SPE _____ (Approval for Disposal)	<input type="checkbox"/> Suspension (Examiner-Initiated) SPE _____ (initial)
<input type="checkbox"/> Defective Appeal Brief	<input type="checkbox"/> SIR Disposal (use only after FAOM)	<input type="checkbox"/> Supplemental Examiner's Amendment
<input checked="" type="checkbox"/> Miscellaneous Office Letter (With Shortened Statutory Period Set)	<input type="checkbox"/> Notice of Non-Responsive Amendment (With One Month Time Period set)	<input type="checkbox"/> Miscellaneous Office Letter (No Response Period Set)
<input type="checkbox"/> Abandonment after BPAI Decision	<input type="checkbox"/> Supplemental Action (excluding Examiner's Answer)	<input type="checkbox"/> Response to Rule 312 Amendment
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<input type="checkbox"/> Abandonment	<input type="checkbox"/> Express Abandonment Date: _____	<input type="checkbox"/> Other Specify: _____

Examiner's Name: William J. Klimowicz

AU: 2652



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William J. Klimowicz  
Primary Examiner  
Art Unit: 2652



# United States Court of Appeals for the Federal Circuit

02-1414, -1554

INTERNATIONAL RECTIFIER CORPORATION,

Plaintiff-Cross Appellant,

v.

IXYS CORPORATION,

Defendant-Appellant.

David E. Killough, Vinson & Elkins L.L.P., of Austin, Texas, argued for plaintiff-cross appellant. Of counsel on the brief was Glenn W. Trost, Coudert Brothers LLP, of Los Angeles, California.

Roger L. Cook, Townsend & Townsend and Crew LLP, of San Francisco, California, argued for defendant-appellant. With him on the brief were R. Scott Wales and Nancy L. Tompkins.

Appealed from: United States District Court for the Central District of California

Judge Manuel L. Real

# United States Court of Appeals for the Federal Circuit

02-1414, -1554

INTERNATIONAL RECTIFIER CORPORATION,

Plaintiff-Cross-Appellant,

v.

IXYS CORPORATION,

Defendant-Appellant.

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DECIDED: March 18, 2004

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Before NEWMAN, LINN, and PROST, Circuit Judges.

LINN, Circuit Judge.

IXYS Corporation ("IXYS") appeals from a final judgment of the United States District Court for the Central District of California concluding, pursuant to a series of stipulations and motions for summary adjudication, that IXYS infringed various claims of U.S. Patents Nos. 4,959,699 ("the '699 patent"), 5,008,725 ("the '725 patent"), and 5,130,767 ("the '767 patent"), owned by International Rectifier Corporation ("IR").<sup>1</sup> Int'l Rectifier Corp. v. IXYS Corp., No. CV-00-6756-R (C.D. Cal. July 1, 2002) ("Final Judgment"). IXYS also appeals from orders of the district court granting IR's motion for summary adjudication of IXYS's affirmative defenses of estoppel and laches, Int'l

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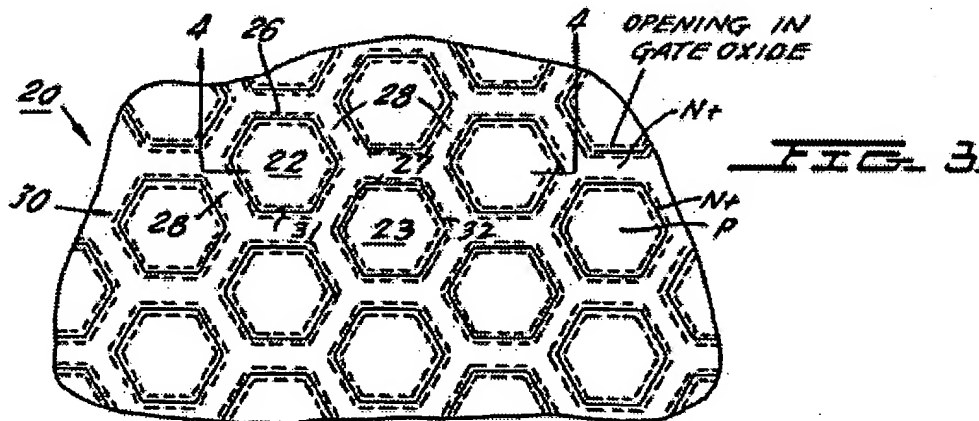
<sup>1</sup> Although captioned as a cross-appellant, IR brings no issues to this court on appeal.

Rectifier Corp. v. IXYS Corp., No. CV-00-6756-R (C.D. Cal. Apr. 1, 2002) ("Equitable Defenses Order"), and derivation and inequitable conduct, Int'l Rectifier Corp. v. IXYS Corp., No. CV-00-6756-R (C.D. Cal. Dec. 17, 2001) ("Derivation Order"). Finally, IXYS requests that, if remand is necessary, this case be reassigned to a different district court judge.

Because IXYS's allegations of derivation and inequitable conduct, even if taken as uncontroverted, are insufficient as a matter of law, we affirm the district court's Derivation Order. However, because the district court's Equitable Defenses Order was based solely on IXYS's invocation of privilege, and because IXYS has set forth other, non-privileged evidence in support of the defenses of laches and estoppel, we vacate the order and remand to the district court for consideration of IXYS's defenses in light of the non-privileged evidence. Because we hold that the district court's construction of the term "adjoining" as used in claims 19, 22, 24, and 27 of the '699 patent was erroneous, and because no reasonable jury could find those claims infringed based on the facts stipulated to by the parties, we reverse the district court's denial of IXYS's motion for summary judgment of non-infringement of claims 19, 22, 24, and 27 of the '699 patent and reverse-in-part the district court's Final Judgment with respect to those claims. Because the district court also erred in construing the claim terms "polygonal" and "annular," and because genuine issues of material fact remain with respect to the asserted claims containing those terms, we vacate-in-part the portion of the district court's Final Judgment relating thereto and remand the case to the original district court judge for further proceedings consistent with this opinion.

## BACKGROUND

The patents-in-suit relate to vertical planar power metal-oxide-semiconductor (VPPM) transistor devices, such as metal-oxide-semiconductor field effect transistors (MOSFETs) and insulated gate bipolar transistors (IGBTs). These devices are used to switch line-level electric voltages on and off at high speeds. Like other semiconductor devices, the transistors at issue here are manufactured, in part, by implanting a pattern of impurities (such as boron) into the surface of a silicon semiconductor wafer. The impurities are introduced through a window in an "implant mask," used to define the pattern of the implant on the surface of the silicon. After implantation, the wafer is heated at a high temperature to cause the impurities to diffuse in three dimensions outwards from the surface and into the wafer. The shape of each region of the resulting transistor is determined by the shape of the mask, the temperature and duration of the diffusion heating, and the concentration of the impurities used.



The written descriptions and drawings of the '725 and '767 patents are identical. Figure 3 of the patents is reproduced above to illustrate the discussion that follows. "By using suitable masks, a plurality of P type base regions such as regions 22 and 23 in [Figure

3] are formed in one surface of the semiconductor wafer region 21, where these regions are generally polygonal in configuration and, preferably, are hexagonal.” ’725 patent, col. 2, l. 65 – col. 3, l. 2. Each of the “polygonal” regions, such as base regions 22 and 23, are surrounded by “polygonal ring” source regions 26 and 27, respectively. Id., col. 3, ll. 20-22.

The claims at issue in this appeal pertain to these regions and their shapes. Claims 1 and 19 of the ’699 patent are representative. Claim 1 recites, in relevant part and with the disputed terms underlined:

1. A high power metal oxide silicon field effect transistor device exhibiting relatively low on-resistance and relatively high breakdown voltage; said device comprising:

a wafer of semiconductor material having first and second opposing semiconductor surfaces; said wafer of semiconductor material having a relatively lightly doped major body portion for receiving junctions and being doped with impurities of one conductivity type;

at least first and second spaced base regions of the opposite conductivity type to said one conductivity type . . .

first and second source regions of said one conductivity type . . .

at least said first base region being a cellular polygonal region; said cellular polygonal region being surrounded by said common conduction region; said first source region having the shape of an annular ring disposed within said cellular polygonal first base region.

’699 patent, Reexamination Certificate Issued Under 35 U.S.C. § 307, B2 4,959,699, col. 1, l. 25 – col. 2, l. 5.

Claim 19 of the ’699 patent recites, with the disputed term underlined:

19. A high power metal oxide silicon field effect transistor device exhibiting relatively low on-resistance; said device comprising:

a wafer of semiconductor material having first and second opposing semiconductor surfaces; said wafer of semiconductor material having a relatively lightly doped major body portion for receiving junctions and being doped with impurities of one conductivity type;

at least first and second spaced base regions of the opposite conductivity type to said one conductivity type formed in said wafer . . .

said wafer including a further region of opposite conductivity type adjoining said lightly doped major body portion; and  
an electrode coupled to said further region.



Id., col. 3, l.6 – col. 4, l. 9.

The technology of these power transistors traces its origins to work done in the late 1970s. In 1975, Hewlett-Packard ("HP") began a new research initiative to develop a semiconductor chip that was capable of fast switching and of withstanding a power surge of 450 volts, about double the wall voltages ordinarily found in Europe and well in excess of the lower voltages found in the United States. This research resulted in the first VPPM device prototype chip. To optimize the prototype chip for commercial production, Dr. Nathan Zommer, founder and current CEO of IXYS, was employed by HP in 1977. Also at HP during this period was Joseph Berger, an engineer, who in the summer of 1977 shared some of HP's developments with Dr. James Plummer, a professor in the Electrical Engineering department at Stanford University.

Dr. Plummer's graduate students did further work advancing the VPPM concept that the HP engineers had developed. Between July and December 1977, Ernie Wood, a Stanford Ph.D. candidate, openly fabricated and tested a new VPPM device in Dr. Plummer's lab (the "Plummer/Wood device"). Wood worked extensively with Dr. John Shott, another member of the Stanford laboratory. Also in the lab with Wood, but working on unrelated projects, was another doctoral student, Alexander Lidow. Wood testified that although he did not recall discussing the Plummer/Wood device with Lidow, the two knew one another and "hung out" together. Wood also testified that he discussed the things he was working on with anyone "that wasn't bored stiff."

Lidow graduated in December 1977 to take a job with IR, a company his father had founded in 1947. IR was interested in producing a commercially viable high-power switching device. Following a brief discussion with Tom Herman, a colleague at IR, and after further discussions with Drs. Shott and Plummer, Lidow developed a basic sketch for such a device.

An initial prototype of this device worked well and eventually led to the '699 patent. The Plummer/Wood device was not disclosed to the United States Patent and Trademark Office ("Patent Office") during the prosecution of the '699 patent. On September 25, 1990, the Patent Office issued the '699 patent to Lidow and Herman. The applications resulting in the '725 and '767 patents, which are not related to the '699 patent but are related to each other via continuation, are directed to similar technology and incorporate the '699 patent by reference. All three patents are assigned to IR.

Several times between 1987 and 1996, IR accused IXYS of infringing its VPPM patents and requested IXYS to take a royalty-bearing license. IXYS refused on the belief that its technology was fundamentally different from that of IR's patents. After another refusal to take a license in 1996, IR and IXYS discussed the possibility of a merger; this merger never occurred.

Between 1996 and 2000, IR asserted its patents against a number of major competitors in the semiconductor field, including Samsung Semiconductor, Inc. and Samsung Electronics Co., Ltd. (collectively "Samsung"). Samsung served as a foundry for IXYS. As part of a settlement between IR and Samsung, a consent judgment and permanent injunction was entered against Samsung. That judgment and injunction explicitly excluded products made by Samsung as a foundry for IXYS. In June 2000, after this string of initially-successful suits, IR sued IXYS for infringement of the '699, '725, and '767 patents in the Central District of California. IXYS denied infringement and also advanced affirmative defenses of equitable estoppel and laches, based on the history of licensing negotiations and merger discussions between IR and IXYS, as well as the fact that IR sued IXYS's foundry but excepted IXYS's products from the consent judgment entered in that case. IXYS

also advanced affirmative defenses of derivation and inequitable conduct before the Patent Office based on the Plummer/Wood device.

In a lengthy series of partial summary judgment orders, the district court dispensed with all of IXYS's affirmative defenses and found IXYS liable for infringement of all forty-eight claims asserted by IR. See Int'l Rectifier Corp. v. IXYS Corp., No. CV-00-6756 (C.D. Cal. June 4, 2002) ("Findings of Fact and Conclusions of Law Re Permanent Injunction"); Equitable Defenses Order; Derivation Order. The court then entered a permanent injunction and a final judgment (except for an accounting) against IXYS. See Final Judgment. IXYS filed a timely appeal. IXYS also filed, and this court granted, an emergency motion to stay the injunction pending appeal. Int'l Rectifier Corp. v. IXYS Corp., No. 02-1414 (Fed. Cir. Aug. 2, 2002). This court has jurisdiction over the appeal under 28 U.S.C. § 1295(a)(1).

## ANALYSIS

### A. Standard of Review

We review a grant of summary judgment de novo, reapplying the same standard used by the district court. Pickholtz v. Rainbow Techs., Inc., 284 F.3d 1365, 1371 (Fed. Cir. 2002). Summary judgment is appropriate "if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." Fed. R. Civ. P. 56(c). In the summary judgment context, "[t]he evidence of the nonmovant is to be believed, and all justifiable inferences are to be drawn in his favor." Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 255 (1986); see also Pickholtz, 284 F.3d at 1371.

A determination of infringement requires a two-step analysis. The court must determine (1) "the scope and meaning of the patent claims asserted," and (2) how "the

properly construed claims . . . compare[] to the allegedly infringing device.” Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1454 (Fed. Cir. 1998) (en banc). Claim construction is a matter of law that we review de novo. Markman v. Westview Instruments, Inc., 52 F.3d 967, 970–71 (Fed. Cir. 1995) (en banc), aff’d, 517 U.S. 370 (1996); Cybor, 138 F.3d at 1456. Comparison of the claims to the accused device requires a factual determination that every claim limitation or its equivalent is found in the accused device. See Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 29 (1997); Pickholtz, 284 F.3d at 1371. Because infringement is a question of fact, infringement is properly decided at summary judgment only “when no reasonable jury could find that every limitation recited in the properly construed claim either is or is not found in the accused device.” Gart v. Logitech, Inc., 254 F.3d 1334, 1339 (Fed. Cir. 2001).

#### B. Claim Construction

On appeal, IXYS challenges the construction of three disputed claim terms: “polygonal,” “annular,” and “adjoining.” Although IXYS’s arguments on claim construction often conflate with its arguments on infringement, we address these issues separately, turning first to claim construction.

The claim construction analysis begins with the words of the claim. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). Absent an express intent to impart a novel meaning to a claim term, the words take on the ordinary and customary meanings attributed to them by those of ordinary skill in the art. Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 334 F.3d 1294, 1298 (Fed. Cir. 2003). To determine the ordinary and customary meaning of a claim term, we may review sources including the claims themselves, see Process Control Corp. v. HydReclaim Corp., 190 F.3d 1350, 1357 (Fed. Cir. 1999); dictionaries and treatises, Tex. Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1202

(Fed. Cir. 2002); and the written description, drawings, and prosecution history, see, e.g., DeMarini Sports, Inc. v. Worth, Inc., 239 F.3d 1314, 1324 (Fed. Cir. 2001).

The specification must be examined in every case to determine which of the possible dictionary meanings is consistent with the use of the claim term in the context of the claims and the written description and to determine if the presumption of ordinary and customary meaning is rebutted. See Ferguson Beauregard v. Mega Sys., LLC, 350 F.3d 1327, 1338-39 (Fed. Cir. Dec. 4, 2003); Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1988). The presumption will be overcome where the patentee, acting as his own lexicographer, has set forth a definition for the term different from its ordinary and customary meaning or where the patentee has disavowed or disclaimed scope of coverage, by using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope. Brookhill-Wilk, 334 F.3d at 1299.

1. "Polygonal"

The word "polygonal" is used to describe a semiconductor base region in forty-four of the forty-eight claims asserted against IXYS—namely all of the asserted claims of the '725 and '767 patents, and all of the asserted claims of the '699 patent except claims 19, 22, 24, and 27. The district court construed this limitation to require that the shape of the region "be generally but not perfectly polygonal—i.e., the surface expression of the base will be a closed figure with generally (not necessarily perfectly) straight sides." Int'l Rectifier Corp. v. IXYS Corp., No. CV-00-6756-R (C.D. Cal. July 25, 2001) ("Infringement Order '699 Patent"), at para. 39. The district court further modified its construction by noting that "[t]he 'corners' of the polygonal regions may take the form of spherical junctions (i.e., round) after processing, and are not necessarily formed by straight lines intersecting at a point to form a well defined angle." Int'l Rectifier Corp. v. IXYS Corp., No. CV-00-6756-R (C.D. Cal. Mar. 5,

2002) ("Construction Order '725 and '767 Patents"), at para 3. Both IR and IXYS agree that the ordinary and customary meaning of the term "polygon" is "a closed plane figure bounded by straight lines." The parties, dispute, however, the propriety of the district court's relaxation of the requirement for straight lines and well-defined angles. In particular, IXYS argues that the district court's claim construction did not give the word "polygonal" its ordinary and customary meaning and that there is no basis in the written description for giving the term "polygonal" anything other than its ordinary and customary meaning. IR, on the other hand, argues that the district court's construction and reasoning in support should be affirmed.

In searching for the ordinary and customary meaning of the expression "polygonal region," we begin with an examination of possible dictionary definitions of the word "polygon." The district court, citing Webster's Ninth New Collegiate Dictionary, stated that: "As defined in the dictionary, a polygon is a closed plane figure bounded by straight lines." This is consistent with dictionary definitions contemporaneous with the patents at issue. See Webster's Third New International Dictionary 1758 (1966) ("Webster's") (defining "polygon" as "a closed figure consisting of straight lines joined end to end"); Webster's Third New International Dictionary 1758 (1993) (same). The parties do not advance any other dictionary definition, nor do the alternative definitions in the dictionary pertain even superficially to the issue at hand. By necessity, the boundary of a closed plane figure will also include multiple included angles, formed at the intersection of the straight lines. The dictionary definitions and the context of the claims themselves do not further illuminate the analysis; "polygonal" is not surrounded in the claims by any context that limits or helps to define its meaning.

We look next to the written description for context and guidance as to the meanings attributed by those of ordinary skill in the art to the term “polygonal” and to see whether the patentee acted as his own lexicographer, or otherwise disavowed or disclaimed the full scope of the ordinary and customary meaning of the term in question. The square base regions depicted in Figure 7 of the '699 patent and the hexagonal base regions depicted in Figure 3 of the '725 and '767 patents are recognizably “closed plane figure[s] bounded by straight lines.” The depictions and descriptions of the patents are consistent with the ordinary dictionary definition of the word “polygon” cited by the district court. IR points to no disavowal or disclaimer of this scope and does not contend that the patentee acted as his own lexicographer. Moreover, neither party argues that anything in the prosecution history affects the scope of any of the disputed claim terms.

Because the polygonal base regions are formed by the diffusion of dopants into the silicon substrate, a process which necessarily blurs the outline of the regions, IR argues that those skilled in the art and informed by the written description would understand “polygonal” to encompass shapes with curved corners. Moreover, IR asserts that the square base region depicted in Figure 7 of the '699 patent has slightly rounded corners, and “a claim interpretation that excludes the preferred embodiment is rarely, if ever, correct.” Gentry Gallery, Inc. v. Berkline Corp., 134 F.3d 1473, 1477 (Fed. Cir. 1998) (internal quotation marks omitted). While IR is correct that the meaning of claim terms must be considered from the perspective of one of ordinary skill in the art, that does not mean that the inventor’s choice of words may be ignored. Hoganas AB v. Dresser Indus., 9 F.3d 948, 951 (Fed. Cir. 1993) (“[A]s we have repeatedly said, the words of a claim ‘will be given their ordinary meaning, unless it appears the inventor used them differently.’” (citations omitted)); see also Brookhill-Wilk, 334 F.3d at 1298; Voice Techs. Group Inc. v. VMC Sys., Inc., 164 F.3d 605,

615 (Fed. Cir. 1999). In the present case, one of ordinary skill in the art would understand from the written description that the diffusion resulting from the doping process will naturally cause some blurring of the corners and sides of the polygonal regions. There is nothing, however, to suggest that the recognition of these diffusion effects by those skilled in the art warrants the re-definition of the term polygon to mean anything other than “a closed plane figure bounded by straight lines.” The district court’s construction, relaxing the requirements so much as to allow round corners and not straight edges, is erroneous. The correct construction of the term “polygonal,” consistent with the written description, is simply “a closed plane figure bounded by straight lines.” The patentee, being fully aware of the effects of the doping process, could have claimed the regions more broadly but chose to use the word “polygonal” without modification or qualification. The district court was not free to attribute new meaning to the term or to excuse the patentee from the consequences of its own word choice.

## 2. “Annular”

The same asserted claims that describe the base regions as “polygonal” describe the source regions as “annular.” The district court construed “annular” to mean “each claimed source has an outer and inner extent defined by generally, but not necessarily perfectly, polygonal shapes.” Construction Order ’725 and ’767 Patents at para. 7. In another order, the district court, discussing “annular,” stated that “[e]ach source is ring-like, in that the semiconductor material . . . constituting the source does not completely fill the space within the polygonal-shaped outer boundary of the source, but instead has an inner polygonal-shaped boundary.” Int’l Rectifier Corp. v. IXYS Corp., No. CV-00-6756-R, (C.D. Cal. Mar. 6, 2002) (“Statement of Uncontroverted Facts ’725 and ’767 Patents”), at para. 18 n.11.



The parties and the district court are in agreement regarding the dictionary definition of annular—specifically, “of, relating to, or forming a ring.” Id. (citing Webster’s Ninth New Collegiate Dictionary at 88); see also Webster’s, supra, at 88 (defining “annular” as “of or relating to a ring: forming a ring: shaped like a ring”). Moreover, the parties agree that the “ring” of the source region need not be circular. Even though the word “ring” ordinarily means “circular,” the written descriptions of the patents re-define the word and refer to the square regions of the ’699 patent and the hexagonal regions of the ’725 and ’767 patents as “ring-shaped region[s]” and “polygonal ring regions,” respectively. ’699 patent, col. 6, l. 32; ’725 patent, col. 3, l. 21. But here is where the agreement ends. IXYS argues that the construction provided by the district court is too broad and could encompass shapes not ordinarily considered to be “annular.” Such shapes include, for example, an oval shape enclosing two parallel rectangles or a hexagonal shape enclosing a plurality of small squares. These regions, argues IXYS, would not be considered “annular” under the ordinary and customary meaning of the word, but do fit within the district court’s construction—having an outer and inner extent defined by generally polygonal shapes. IXYS argues that a better construction for “annular” would be a space “defined by two concentric polygons.” IR argues that the district court’s interpretation is correct and that IXYS’s construction is unsupportable. The crux of the disagreement reduces to whether the term “annular” requires concentricity of inner and outer borders of like shape.

As noted above, the ordinary and customary meaning of the term “annular” is “of or relating to a ring: forming a ring: shaped like a ring.” Webster’s, supra, at 88. In turn, the only relevant definition of “ring” includes “a circular or curved band.” Id. at 1958. The relevant definition of “band” includes “an elongated surface or section with parallel or roughly parallel sides.” Id. at 170. The ordinary and customary meaning of “annular” is thus “of or

relating to a circular or curved surface or section with roughly parallel sides; forming or shaped like a circular or curved surface or section with roughly parallel sides.” In order, then, for the surface or section to have roughly parallel sides, it must be formed of two concentric circular or curved regions. The ordinary definition of “annular” is thus “of or relating to an area formed by two concentric circular or curved regions.”

In this case, the inventor has deviated from this ordinary and customary meaning, and has used the word “annular” to describe structures that are not circular or curved, but polygonal. In particular, Figure 7 of the ’699 patent illustrates base and source regions of concentric squares, and Figure 3 of the ’725 and ’767 patents illustrates base and source regions of concentric hexagons. The text accompanying these figures refers to these shapes as “rings.” See, e.g., ’699 patent, col. 6, ll. 20-25, 32; ’725 patent, col. 3, l. 21. Therefore, it is evident from the intrinsic record that the inventor has attributed a meaning to the term “annular” that is broader than the ordinary and customary meaning limited to an area formed by two concentric circles. The written description shows that the patentee used the term to describe the area between two concentric polygons, or an area shaped like a polygonal band. In doing so, the patentee acted as his own lexicographer, and the patentee’s definition trumps the ordinary and customary meaning that otherwise would have attached. 3M Innovative Props. Co. v. Avery Dennison Corp., 350 F.3d 1365, 1374 (Fed. Cir. Dec. 2, 2003).

The written description, however, does not support any broader reading than this. The district court’s construction, requiring only that “each claimed source has an outer and inner extent defined by generally, but not necessarily perfectly, polygonal shapes,” is overbroad because it permits sources that are not formed by concentric regions; in fact, the district court’s construction would encompass shapes that are not ring-like at all, regardless

of the shape of the outer polygonal extent. Therefore, we reverse the district court's construction of the term "annular," and hold that the term, as used in the patents-in-suit, means "a surface area defined by two concentric polygons."

### 3. "Adjoining"

The final disputed claim limitation is "said wafer including a further region of opposite conductivity type adjoining said lightly doped major body portion," (emphasis added) found in claim 19 of the '699 patent. This claim and three claims dependent therefrom are the four claims asserted against IXYS that do not contain the terms "polygonal" and "annular." The district court construed "adjoining" as follows:

Consistent with Figure 8 [of the '699 patent], the dictionary definitions of "adjoin," "adjoining," and its synonym "adjacent" indicate that two objects need not be in physical contact to be "adjoining." See Webster's Ninth New Collegiate Dictionary, p. 56, which states that "adjoin" can mean "to be close to or in contact with one another," while "adjacent" is a synonym of adjoining and means "not distant; nearby."

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IXYS argues that the district court erroneously misquoted the cited dictionary, and that the construction thus provided is incorrect. IR counters that IXYS is asserting the most narrow ordinary and customary definition for the term "adjoining," contrary to our precedent. See, e.g., Inverness Med. Switz. GmbH v. Warner Lambert Co., 309 F.3d 1373, 1378-80 (stating that a term is to be given its broadest ordinary meaning consistent with the written description).

The dictionary definition cited by the district court, when examined carefully, not only defines "adjoining," but further, makes an express distinction between "adjoining" and "adjacent." Other dictionaries contemporaneous with the patents contain a similar definition. The definition of "adjoining" is "touching or bounding at some point or on some line: near in

space.” Webster’s, supra, at 27. This definition, in turn, references “adjacent” as synonymous. The dictionary then defines “adjacent” and notes that, as between adjacent and adjoining, “[adjoining] may more strongly indicate existence of common bounding lines or lines or points of junction.” Id. at 26. By resorting to the dictionary to determine the ordinary and customary meaning of the claim term, the district court was not free to disregard this usage note. It is true that “[i]f more than one dictionary definition is consistent with the use of the words in the intrinsic record, the claim terms may be construed to encompass all such consistent meanings.” Tex. Digital, 308 F.3d at 1203. However, in this case, the district court’s adoption of a definition attributed to “adjacent,” a synonym of the claim term, disregards entirely the distinction between the two terms set forth in the usage note. Had the inventor meant “adjacent,” he could have used that word. However, we must consider the word that the inventor actually chose and use the definitions of that term that are consistent with the written description.

Because there is no express disavowal or limit on the scope of the claim term, we give “adjoining” its ordinary and customary meaning as “touching or bounding at a point or a line.”

IR argues that by adopting a claim construction that requires adjoining regions to touch, not only would the construction be inconsistent with the written description, but it would also exclude the preferred embodiment, a conclusion that IR correctly observes is rarely, if ever, correct. See Gentry Gallery, 134 F.3d at 1477. IR argues that the “adjoining” “major body portion” 87 and “further region” 83 depicted in Figure 8 of the ’699 patent have an intervening layer (84) between them. IR’s argument is not persuasive because it overlooks the fact that “major body portion” 87 and “further region” 83 do touch, at least in part. Therefore, those regions are adjoining in the embodiment shown and described in the patents. IR points to the intervening layer between the two regions, but fails to appreciate

that, as depicted in Figure 8, that layer does not extend to the full length of the regions, leaving the ends in direct contact. There is nothing in the language of the claims or in the ordinary and customary meaning of the word “adjoining” to require that adjoining regions touch over any particular expanse, only that they are “touching or bounding at a point or line.” The broad definition of the term “adjoining” is entirely consistent with the written description and does not exclude the preferred embodiment.

### C. Infringement

Once the claims have been properly construed, the second step of an infringement analysis is to determine how the claims, as construed, compare to the allegedly infringing device. Cybor Corp., 138 F.3d at 1454. This inquiry is factual. See Pickholtz, 284 F.3d at 1371.

#### 1. “Polygonal” and “Annular”

IR argues that because the parties have stipulated for purposes of summary judgment to a simulated shape of the IXYS source and base regions, the question of infringement is a matter of law, citing this court’s decision in General Mills, Inc. v. Hunt-Wesson, Inc. 103 F.3d 978, 983 (Fed. Cir. 1997) (“Where the parties do not dispute any relevant facts regarding the accused product . . . but disagree over possible claim interpretations, the question of literal infringement collapses into claim construction and is amenable to summary judgment.”). In General Mills, however, the parties agreed with each other and the district court about how each of two competing claim constructions would apply to the undisputed structure of the accused invention. Here, in contrast, only the structure of IXYS’s product has been stipulated to for summary judgment purposes, not the factual determination of whether that product meets one or another claim construction. Because factual issues exist as to whether IXYS’s devices include the “polygonal” and “annular” limitations of the claims, as properly

construed, we vacate-in-part the district court's grant of partial summary judgment in favor of IR that IXYS's devices infringe claims 1, 7-8, 20, 23, 25-26, and 28-29 of the '699 patent; claims 3-5, 8, 13-14, 20, 24-26, 29, 33-34, 37, 41-42, 45, and 51-52 of the '725 patent; and claims 3-4 and 7-12 of the '767 patent, and remand the same for consideration consistent with this opinion.

## 2. "Adjoining"

We next address infringement of the '699 patent claim 19 and its dependent claims 22, 24, and 27, which use the term "adjoining." It is undisputed that the IXYS devices include a buffer layer that fully separates the "major body portion" from the "further region of opposite conductivity type" described in claim 19. The only question is whether, as a matter of law, "adjoining" means "touching." We have concluded that it does.

IXYS moved for summary adjudication that its devices do not infringe the '699 patent. The district court denied that motion. Int'l Rectifier Corp. v. IXYS Corp., No. CV-00-6756-R (C.D. Cal. July 25, 2001) (order denying IXYS's motion for summary adjudication re non-infringement and invalidity of U.S. Patent No. 4,959,699). The district court's denial depended, in part, on an erroneous conclusion of law as to the construction of "adjoining," and its determination that, under its construction, no reasonable jury could conclude that the IXYS products do not infringe under the undisputed facts. However, in view of the proper claim construction set forth above, i.e., "adjoining" means "touching or bounding at a point or a line," and the undisputed evidence that the IXYS devices include a buffer layer that fully separates the "major body portion" from the "further region of opposite conductivity type," we conclude that there can be no infringement. Therefore, we reverse the district court's summary judgment order in favor of IR to the extent the court concluded that the IXYS

devices infringe claims 19, 22, 24, and 27 of the '699 patent, and remand with instructions to enter a judgment of non-infringement of these claims in favor of IXYS.

D. IXYS's Affirmative Defenses

IXYS next argues that the district court erroneously granted IR's motion for summary adjudication on IXYS's affirmative defenses of laches and estoppel and IR's motion for summary adjudication on IXYS's affirmative defenses of derivation and inequitable conduct with respect to the Plummer/Wood device. We consider each in turn.

As a preliminary note, IR mischaracterizes the district court's disposition of IR's motion for summary adjudication on its affirmative defenses of laches and estoppel as the striking of these defenses. Because the posture of the disposition affects our review standard, it is important to recognize that the district court did not strike these defenses but rather entered judgment in IR's favor on these issues. Equitable Defenses Order at 2. Specifically, the district court granted summary judgment in IR's favor on the laches and estoppel defenses based on IXYS's assertion of attorney-client privilege to withhold facts considered by the district court to be material to the analysis of these claims. Int'l Rectifier Corp. v. IXYS Corp., No. CV-00-6756-R (C.D. Cal. Apr. 1, 2002) ("Equitable Defenses Findings of Fact and Conclusions of Law"), at paras. 9, 27. IXYS claims that this was in error because none of the facts it relied upon to support its equitable defenses fell under the privilege it invoked. IR asserts that the district court's ruling is correct, because any assertion of estoppel and laches "inherently places at issue [IXYS's] communications with counsel."

IXYS points to a number of allegedly undisputed facts that it contends supports the claims of laches and estoppel. IXYS lists the lengthy licensing negotiations, the opinion of Dr. Zommer, the discussion between Zommer and IR regarding why Zommer believed IXYS's

products did not infringe, the proposed merger, the Samsung suit that excluded IXYS's products, and IR's offer to serve as IXYS's foundry after Samsung sold its business, as facts supporting IXYS's belief that IR did not intend to assert its patents. None of these is based on opinion or advice of counsel. Given that IXYS is basing its defense on non-privileged evidence, IR's argument has no merit. The cases IR cites are not dispositive, because the cases each involve situations in which the withheld information is relevant. We agree with IXYS that it is entitled to present its claims of laches and estoppel based on the non-privileged evidence, and we therefore vacate the district court's grant of summary judgment in IR's favor on these defenses and remand for further proceedings consistent herewith.

With respect to IXYS's affirmative defenses of derivation and inequitable conduct related to the '699 patent, the district court granted summary judgment to IR because it determined there were no genuine issues of material fact. The court then determined, as a matter of law, that no juror could find that the Plummer/Wood device was the same as the claimed invention or that the Plummer/Wood device was communicated to the inventors. The district court also concluded that there was no inequitable conduct. See Derivation Order. IXYS argues that the district court, in reaching this conclusion, failed to resolve all legitimate inferences in its favor as a non-movant. IR asserts that the district court's determinations were correct, based on the slim evidence before it.

Derivation requires a showing of both (1) prior conception of the invention by another and (2) communication of that conception to the patentee that is "sufficient to enable [him] to construct and successfully operate the invention." Gambro Lundia AB v. Baxter Healthcare Corp., 110 F.3d 1573, 1577 (Fed. Cir. 1997) (citations omitted). In its Derivation Order, the district court determined that neither the prior conception prong nor the communication prong was met. With respect to prior conception, the district court determined that the



Plummer/Wood device was different from the claimed invention because the Plummer/Wood device did not have a polygonal base region. The undisputed evidence, in the form of deposition testimony from Wood, is that the Plummer/Wood base was either oval or horseshoe-shaped. Given that the district court correctly determined that there was no genuine issue of material fact that the Plummer/Wood base was not polygonal even under its relaxed construction of that term, no reasonable juror could conclude that the Plummer/Wood base is polygonal under this court's narrower, proper claim construction. Therefore, we determine as a matter of law that the prior conception prong cannot be met. We need not and do not address the communication prong. Because the district court correctly determined that there were no genuine issues of material fact and that IR was entitled to judgment as a matter of law, we affirm the district court's grant of summary adjudication in IR's favor with respect to IXYS's affirmative defense of derivation.

With respect to inequitable conduct, IXYS asserts that, because summary judgment was improperly granted on its derivation claim, the district court could not properly grant summary judgment on inequitable conduct. Because we affirm the district court's determination on derivation, IXYS's inequitable conduct challenge fails and we decline to disturb the district court's grant of summary judgment on this defense.

#### E. Remand to Another Judge

We have carefully considered IXYS's request to have this case assigned to another judge and find it to be without merit. Because requests for remand to another judge are outside the exclusive purview of patent law, we review IXYS's request under the standard of the Ninth Circuit. Midwest Indus., Inc. v. Karavan Trailers, Inc., 175 F.3d 1356, 1359 (Fed. Cir. 1999) (*en banc* in relevant part) (stating that "with respect to nonpatent issues we generally apply the law of the circuit in which the district court sits"). In the absence of proof

of personal bias, the Ninth Circuit remands to a new judge only under “unusual circumstances.” United States v. Sears, Roebuck & Co., Inc., 785 F.2d 777, 780 (9th Cir. 1986) (quoting United States v. Arnett, 628 F.2d 1162, 1165 (9th Cir. 1979)). In making this determination, the Ninth Circuit considers (1) whether the original judge would reasonably be expected, on remand, to have substantial difficulty in putting out of his mind previously-expressed views or findings determined to be erroneous or based on evidence that must be rejected; (2) whether reassignment is advisable to preserve the appearance of justice; and (3) whether reassignment would entail waste and duplication out of proportion to any gain in preserving the appearance of fairness. Id. The first two factors are of equal importance, and either is sufficient to support a remand to a different judge. Id. In this case, there is no proof of personal bias. Further, there is no indication that the original judge in this case would be unable to put out of his mind previously expressed views and findings, in light of the instructions provided herein. In such a case, reassignment is not necessary to preserve the appearance of justice. We see no reason to intervene in the district court’s regular assignment of judges to these proceedings on remand.

### CONCLUSION

For the foregoing reasons, the court: (1) reverses-in-part the district court’s grant of summary judgment in favor of IR for infringement, with respect to claims 19, 22, 24, and 27 of the ’699 patent, and remands for entry of judgment in IXYS’s favor; (2) vacates-in-part the district court’s grant of summary judgment in favor of IR for infringement of the remaining asserted claims and remands for further proceedings consistent with this opinion; (3) vacates the district court’s grant of summary judgment in IR’s favor with respect to the affirmative defenses of laches and estoppel and remands to allow IXYS to present these affirmative defenses based on non-privileged evidence; and (4) affirms the district court’s grant of

summary judgment in IR's favor on the issues of derivation and inequitable conduct. Further, in light of this court's decision, reversing-in-part and vacating-in-part all infringement findings, we vacate the district court's permanent injunction against IXYS.

AFFIRMED-IN-PART, REVERSED-IN-PART, VACATED-IN-PART AND REMANDED

#### COSTS

No costs.